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John Dunagan

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WOLF GREENFIELD (Microsoft Corporation)
C/O WOLF, GREENFIELD & SACKS, P.C.
600 ATLANTIC AVENUE
BOSTON, MA 02210-2206

EXAMINER

MACILWINEN, JOHN MOORE JAIN

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/686,620	Applicant(s) DUNAGAN ET AL.	
	Examiner John M. MacIwinen	Art Unit 2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12,25-36 and 38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12,25-36 and 38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 10/9/2009 have been fully considered but they are not persuasive.
2. Applicant argues on pages 12 – 13 that “adding a hop count to a message, as taught by Feigenbaum, is very different from forming a multicast tree such that a path in the multicast tree is prohibited from re-entering the first network region once the path leaves the first network region”.

In Feigenbaum, the claimed path is represented by path the request messages follow. The claimed trees are represented by the “network boundaries” taught by Feigenbaum; thus A, B and C each serve as a claimed “tree” (where McCanne, for example provides additional teachings regarding multicast trees and paths within multicast trees, using the term “administrative boundaries” in place of “network boundaries”).

Feigenbaum limits the “number of network boundaries” the communication/path may cross.

3. Applicant argues that “The hop count described by Feigenbaum does not control a path in the multicast tree, but instead controls a message”.

As noted above, McCanne provides additional explicit teachings regarding paths in multicast trees.

The control of the message taught by Feigenbaum controls the “path” the message is allowed to traverse by limiting the network boundaries/trees a message can

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traverse.

As taught by Feigenbaum, a "0 hop count value would prevent further forwarding".

Feigenbaum thus teaches using a 0 hop count value, where at said 0 hop count value a message cannot re-enter a network region once the path leaves a first network region.

Applicant's arguments thus are not persuasive.

4. Applicant continues on page 13 arguing that "The skilled person reviewing McCanne would not obtain a teaching or suggestion of the above limitations".

McCanne shows the claimed "node name" identification in 6;35-55, for example.

McCanne additionally shows in 17;3-5 where broadcast traffic is limited from entering "regions of the network where there are no interested receivers".

McCanne teaches achieving limiting traffic to a first network region by utilizing "administratively scoped traffic [that] does not cross network boundaries" (col. 7 line 62 – col. 8 line 1) and further teaches where "A routing boundary is represented by range of multicast addresses; i.e., an administrative boundary is imposed by preventing multicast packets that fall within the administrative address range to be blocked at that boundary point".

Thus the "boundary point" of McCanne teaches the claimed "intermediate node".

Scribe provides additional teachings regarding subscribers and subscription messages.

Applicant's arguments thus are not persuasive.

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5. Applicant argues on page 14 that “No prior art has been cited against claims 25 – 35”. However, Applicant’s has amended said claims, and in view of Applicant’s amendment a new grounds of rejection has been made. Said grounds of rejection is discussed further below.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 2, 5 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe: A large-scale and decentralized application-level multicast infrastructure (Castro et al., published in IEEE Journal 10/2002, but publicly available online 9/2002), hereafter Scribe, in view of Feigenbaum (4,718,005) further in view of Crockett (US 2003/0154243 A1) and McCann (US 7,133,928 B2).

9. Regarding claims 1 and 36, Scribe shows a method and computer readable medium for providing a scalable multicast infrastructure for multicast messaging on an overlay network including a set of nodes (Introduction and pgs. 101 and 102), wherein each node in the set has a node name, the method comprising: forming a multicast tree formed from a subset of the set of overlay nodes, such that a root node of the multicast

tree belongs to a first network region and

disseminating messages through the multicast tree (pgs. 101 and 102, furthermore, it is inherent that said root node must belong to a network region).

Scribe does not show where a path in the multicast tree is prohibited from re-entering the first network region once the path leaves the first network region.

Feigenbaum shows where a path in the multicast tree is prohibited from re-entering the first network region once the path leaves the first network region (Fig. 17, col. 11 lines 14 – 64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe with that of Feigenbaum in order to ensure that node requests do not result in endless looping, rendering the network unusable (Feigenbaum, col. 11 lines 14 – 64).

Scribe in view of Feigenbaum show utilizing node names, including an IP address for contacting a node whenever possible (Scribe, Section III, A.3, Paragraph 1, and A.2 Paragraph 2)

Scribe in view of Feigenbaum do not show where the IP address corresponds to location information.

Crockett shows where an IP address corresponds to location information ([48, 96-98]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Feigenbaum with that of Crockett as IP addresses are an extremely common way of contacting nodes, and IP addresses

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inherently disclose information about the nodes which they representing, thus providing a obvious choice for learning more about a node.

Scribe in view of Feigenbaum and Crockett thus show nodes identified by node names as well as where node names indicate the nodes network region (Scribe, Section III, A.3, Paragraph 1, and A.2 Paragraph 2). However, Scribe in view of Feigenbaum and Crockett do not show all of including an intermediate node in a path from a subscriber node to the root node of the multicast tree forwarding a subscription message only to a node identified by the node name as belonging to the first network region.

McCanne shows including an intermediate node in a path from a subscriber node to the root node of the multicast tree forwarding a subscription message only to a node identified by the node name as belonging to the first network region (col. 6 lines 6 – 40, col. 7 line 51 - col. 8 line 3 and col. 19 lines 43 - 68).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Feigenbaum and Crockett with that of McCanne in order to better manage the overlay network and better manage network bandwidth (McCanne, col. 2 lines 42 - 61).

10. Regarding claim 2, Scribe in view of Feigenbaum, Crockett and McCanne further disclose wherein the multicast tree is formed by routing a subscription message from a subscriber node in the first network region to the root node, comprising: receiving the subscription message at a node in the first network region; recording a forwarding pointer to a previous node from which the message was received; and forwarding the

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message to the root node by routing the message to a next node within the first network region, based on a node name of the next node (Scribe, Section III, A.2 and Figs. 3 – 5; specifically where said subscription message is represented in Scribe by a 'join' message, and where said root node is represented in Scribe by a 'rendez-vous point', and where said node name is represented by said 'nodeID' and 'nextID', which can both also be IP addresses).

11. Regarding claim 5, Scribe in view of Feigenbaum, Crockett and McCanne further disclose wherein a network region is one of a geographic locality and an administrative domain (Crockett [48, 96-98]).

12. Claims 3, 4 and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Feigenbaum, Crockett and McCanne as applied to claim 1 above, and further in view of Speakman et al. (US 6,398,475 B1), hereafter Speakman.

13. Regarding claim 3, Scribe in view of Feigenbaum, Crockett and McCanne show claim 1, including; forming a plurality of multicast trees (Scribe, Introduction, Paragraph 3) and forwarding the messages to subscribers through the plurality of multicast trees (Scribe, Section III, Paragraph 1).

Scribe in view of Feigenbaum and Crockett do not show creating a topic for which messages are published and publishing messages about the topic to a root node of each of the plurality of multicast trees.

Speakeman shows creating a topic for which messages are published and publishing messages about the topic to a root node of each of the plurality of multicast trees (Abstract, col. 1 line 55 – col. 2 line 45).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Feigenbaum, Crockett and McCanne with that of Speakeman in order to utilize a more efficient multicast tree structure that minimizes duplication of effort (Speakeman, col. 1).

14. Regarding claim 4, Scribe in view of Feigenbaum, Crockett, McCanne and Speakeman further show wherein a subscriber in the first network region finds the topic using a name service comprising a directory of topics published in the first network region (Speakerman, col. 3 line 25 – col. 4 line 24, Abstract).

15. Regarding claim 12, Scribe in view of Feigenbaum, Crockett, McCanne and Speakeman further disclose maintaining a buffer at each node of each of the plurality of multicast trees to record recent messages (Scribe, pg. 105 col. 1 lines 13 – 16, Feigenbaum, col. 6 line 55 – col. 7 line 7).

16. Claims 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Feigenbaum, Crockett and McCanne as applied to claim 1 above, and further in view of Jonsson (US 2003/0162499 A1).

17. Regarding claim 6, Scribe in view of Feigenbaum and Crockett show claim 1.

Scribe in view of Feigenbaum, Crockett and McCanne do not show wherein a network region comprises a subset of the set of overlay nodes, and wherein the network

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region is owned by an organization and each node in the network region also belongs to the organization.

Jonsson shows wherein a network region comprises a subset of the set of overlay nodes (Fig. 1, [101-102,130-132]), and wherein the network region is owned by an organization (Fig. 6, [55,78]) and each node in the network region also belongs to the organization (Fig. 1, [101-102,130-132]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Feigenbaum, Crockett and McCanne with that of Jonsson in order to enable more routing options, such as via different external networks (Jonsson, Abstract).

18. Regarding claim 11, Scribe in view of Feigenbaum, Crockett, McCanne and Jonsson further disclose wherein an external node belonging to a second organization sends a subscription message to the root node of the multicast tree by determining an internet protocol address of a node in the first organization using a name service and sending the subscription message from the external node to the node belonging to the first organization using a network transport layer underlying the overlay network (Scribe, Section III, A.3).

19. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Feigenbaum, Crockett, McCanne and Jonsson as applied to claim 6 above, and further in view of mail.yahoo.co.uk (as shown in the provided Internet Archive page as existing in 1999).

Scribe in view of Feigenbaum, Crockett, McCanne and Jonsson show claim 6.

Scribe in view of Feigenbaum, Crockett, McCanne and Jonsson do not show wherein the node name comprises an organizational indicator indicating ownership by the organization, and an organization-relative indicator that encodes one of a geographic locality and an administrative subdivision within the organization.

mail.yahoo.co.uk shows wherein the node name comprises an organizational indicator indicating ownership by the organization (in this case Yahoo, Inc.), and an organization-relative indicator that encodes one of a geographic locality (in this case, 'co.uk', indicating the United Kingdom) and an administrative subdivision within the organization (in this case, Yahoo, Inc.'s mail subdivision).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Feigenbaum, Crockett, McCanne and Jonsson with that of mail.yahoo.co.uk as such types of addresses provide useful descriptions to users and are commonly used identifiers.

20. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Feigenbaum, Crockett and Jonsson as applied to claim 6 above, and further in view of Novaes (US 2003/0012130 A1), hereafter Novaes'130.

Scribe in view of Feigenbaum, Crockett, McCanne and Jonsson show wherein an external node belonging to a second organization sends a subscription message to the root node of the multicast tree, further comprising: receiving the subscription message at a last node in the second organization, recording a forwarding pointer to a previous

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node from which the message was received at the last node (Scribe, pgs. 101 – 102), and modifying the subscription message (pg. 102, 'forward()' method).

Scribe in view of Feigenbaum, Crockett, McCanne and Jonsson do not show and determining that a next hop in a routing path to the root node is to a node not in the second organization; and modifying the subscription message to request that a node in the first organization forward messages directly to the last node.

Novaes'130 shows determining that a next hop in a routing path to the root node is to a node not in the second organization; and modifying the subscription message to request that a node in the first organization forward messages directly to the last node ([5-9,21-24,28,41-49,69-73]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Feigenbaum, Crockett, McCanne and Jonsson with that of Novaes'130 in order to utilize a more efficient multicast infrastructure ([45,49]).

21. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Feigenbaum, Crockett, McCanne, Jonsson and Novaes'130 as applied to claim 8 above, and further in view of Speakeman.

Scribe in view of Feigenbaum, Crockett, McCanne, Jonsson and Novaes'130 show claim 8.

Scribe in view of Feigenbaum, Crockett, McCanne, Jonsson and Novaes'130 do not show receiving a confirmation message from the node in the first organization.

Speakeman shows receiving a confirmation message from the node in the first organization (col. 4 line 65 – col. 5 line 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Feigenbaum, Crockett, McCanne, Jonsson and Novaes'130 with that of Speakeman in to provide more reliability when transferring messages.

22. Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Feigenbaum, Crockett, McCanne, Jonsson, Novaes'130 and Speakeman as applied to claim 9 above, and further in view of Burbeck (US 7,143,139 B2).

Scribe in view of Feigenbaum, Crockett, McCanne, Jonsson, Novaes'130, and Speakeman show claim 9.

Scribe in view of Feigenbaum, Crockett, McCanne, Jonsson, Novaes'130, and Speakeman do not show wherein, if no confirmation message is received choosing a different node and forwarding the subscription request to the different node.

Burbeck shows wherein, if no confirmation message is received choosing a different node and forwarding the subscription request to the different node (col. 3 lines 26 –39).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Feigenbaum, Crockett, McCanne, Jonsson, Novaes'130 and Speakeman with that of Burbeck in order to utilize all available routes for sending a subscription message to that the odds of the subscription

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being established is maximized.

23. Claims 25 - 28, 32, 35 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Novaes (US 2003/0021258 A1), hereafter Novaes'258 (where the above referenced Novaes'130 is incorporated by reference into Novaes'258).

24. Regarding claims 25 and 38, Scribe shows a method of and computer readable medium for participating in a scalable multicast infrastructure for multicast messaging on an overlay network including a set of nodes, the method comprising: joining a first multicast tree including overlay nodes in an overlay routing path between a subscriber node and a root node of the first multicast tree (Introduction, pg. 101 and 102).

Scribe does not explicitly show all of: wherein the first multicast tree includes overlay nodes that voluntarily participate in message dissemination and non-participating overlay nodes that do not wish to participate in message dissemination; and

joining a second multicast tree formed from the first multicast tree, wherein the second multicast tree includes a subset of the overlay nodes in the first multicast tree, the subset consisting of the overlay nodes that are subscribers to an event topic and the overlay nodes that voluntarily participate in message dissemination but are not subscribers to the event topic, and wherein the second multicast tree excludes the non-participating overlay nodes that do not wish to participate in message dissemination.

Novaes'258 and Novaes'130 show wherein the first multicast tree includes

overlay nodes that voluntarily participate (represented by the routers that are not subscribers, [56] and [117 - 120]) in message dissemination and non-participating overlay nodes that do not wish to participate in message dissemination (represented by those that have unsubscribed from the notification stream and thus removed themselves from the distribution list ([65-67])); and

joining a second multicast tree formed from the first multicast tree, wherein the second multicast tree includes a subset of the overlay nodes in the first multicast tree ([66,72]), the subset consisting of the overlay nodes that are subscribers ([110], represented by Novaes'258's subscribers) to an event topic and the overlay nodes that voluntarily participate in message dissemination but are not subscribers (represented by the routers that are not subscribers but merely forward messages other subscribers ([56, 117 - 120]) to the event topic, and wherein the second multicast tree excludes the non-participating overlay nodes that do not wish to participate in message dissemination ([113]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe with that of Novaes'258 and Novaes'130 in order to utilize a more efficient multicast infrastructure ([6-8, 61]).

25. Regarding claim 26, Scribe in view of Novaes'258 and Novaes'130 further show wherein the first multicast tree includes a plurality of subscribers (Scribe, Section III, A.2 and Novaes'258, Fig. 1 and [110]).

26. Regarding claim 27, Scribe in view of Novaes'258 and Novaes'130 further show wherein joining the first multicast tree includes sending a subscription message from a

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first node addressed to a root node through the overlay network, each node in the overlay routing path: receiving the subscription message at an intermediate node from a preceding node; recording a tree forwarding pointer that points to the preceding node at the intermediate node; and forwarding the subscription message to a next node, wherein the subscription message stops when it reaches one of the root node and another node in the first multicast tree (Scribe, Section A.2 and Novaes, Fig. 5).

27. Regarding claim 28, Scribe in view of Novaes'258 and Novaes'130 further show wherein forming the second multicast tree includes assuming forwarding duties of a non-participating node wherein forwarding duties includes forwarding event messages received from a parent node of the non-participating node to a child node of the non-participating node (Novaes'130, [5-9,21-24,28,41-49,69-73]).

28. Regarding claim 32, Scribe in view of Novaes'258 and Novaes'130 further show wherein joining the second multicast tree includes:

receiving at the subscriber node a probe message from a node in the second tree, wherein each node in the first tree receiving the subscription message (Novaes'258, [91]) forwards the subscription message through the first tree until the subscription message is received by the node in the second tree (Novaes'258, [85]), and

sending a message to the node in the second tree instructing the node in the second tree to forward messages directly to the subscriber node (Nova'es'258, [119]).

29. Regarding claim 35, Scribe in view of Novaes'258 and Novaes'130 further show creating a failure notification group including every node receiving the subscription

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message, wherein the failure notification group is created using a failure notification service, and wherein the failure notification service removes a relevant state if a failure is ascertained (Novaes'130[5-9,21-24,28,41-49, 69-73], specifically where every node updates its routing information to reflect a node failure, and thus all nodes are part of said 'failure notification group' and where every node updates their routing information to route around a failed node, thus removing its 'state information' from their actively used routing tables).

30. Claims 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Novaes'258 and Novaes'130 as applied to claim 28 above, and further in view of Stanko (US 2005/0074126 A1).

31. Regarding claim 29, Scribe in view of Novaes'258 and Novaes'130 show claim 28, including delegating forwarding duties (Novaes'130, [5-9,21-24,28,41-49,69-73]) and after said forwarding duties have been delegated to an ancestor node of the participating node that is the non-participating node, wherein an ancestor node of the non-participating node is directed to forward messages directly to the participating node (Novaes'130, Figs. 2 – 5).

Scribe in view of Novaes'258 and Novaes'130 do not show where said delegation is achieved through the use of a unique delegation ticket that includes a pointer to the participating node.

Stanko shows where said delegation is achieved through the use of a unique delegation ticket that includes a pointer ([59]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Novaes'258 and Novaes'130 with that of Stanko in order to utilize a secured method of delegating tasks.

32. Regarding claim 30, Scribe in view of Novaes'258, Novaes'130 and Stanko further show the generation of one delegation ticket (Stanko, [0059]).

Scribe in view of Novaes'258, Novaes'130 and Stanko do not show where only one ticket is generated.

Logical reasoning dictates that generating only one ticket would be the most simple and least resource intensive method, and thus an obvious experimental choice.

33. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view Novaes'258, Novaes'130 and Stanko as applied to claim 29 above, and further in view of Traversat (US 2002/0143855 A1).

Scribe in view of Novaes'258, Novaes'130 and Stanko show claim 29.

Scribe in view of Novaes'258, Novaes'130 and Stanko do not show wherein the non-participating node must pass the delegation ticket to an ancestor node if the ancestor node is also a non-participating node.

Traversat shows relaying messages until the desired destination is reached ([412]), and thus shows wherein the non-participating node must pass the delegation ticket to an ancestor node if the ancestor node is also a non-participating node, as if this extra pass did not occur, no joining process would occur and nothing meaningful/furthering the goals of claims 29 and 31 would have been accomplished.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Speakeman, O'Sullivan, Novaes and Stanko with that of Traversat in order to ensure messages achieve the purpose for which they were sent.

34. Claims 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Novaes'258, Novaes'130 as applied to claim 25 above, and further in view of Burbeck (US 7,143,139 B2).

Regarding claims 33 and 34, Scribe in view of Speakeman and O'Sullivan show claim 25.

Scribe in view of Novaes'258, Novaes'130 do not show all of: when the subscription message is received at a first node in the first tree, the first node forwards the subscription message to a parent node of the first node if the first node is not a node in the second tree and has not previously forwarded a subscription message to the parent node, nor do they show then subsequently forwarding a subscription message to a child node if the first node remains not in the second tree.

Burbeck shows trying different nodes based on which is perceived as being best capable to respond and fulfill the request (col. 3 lines 26 – 39).

The examiner takes official notice that it would have been an obvious choice to first choose the parent node as a potential subscription route, and then if that failed (which is inherent if the requesting node remains not in the second tree) trying a child node. A node always has a finite number of connections, in a simple and common case,

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as is claimed, a node would have a parent and a child. Thus it would have been obvious to experiment to try first sending a request to the parent, then if that failed, the child, in order to utilize Burbeck's disclosure of trying multiple routes until the desired result is achieved.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John M. MacIlwinen whose telephone number is (571) 272-9686. The examiner can normally be reached on M-F 7:30AM - 5:00PM EST; off alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joon Hwang, can be reached on (571) 272 - 4036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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John MacIlwinen

(571) 213 – 6095

/Joon H. Hwang/

Supervisory Patent Examiner, Art Unit 2447